
ICT INITIATIVES IN ADB EDUCATION PROJECTS

A. The Projects and the Scope of Evaluation

This review covers loan and TA projects in the education sector that were approved or under formulation by ADB during the period from January 2000 to March 2004.¹⁵⁵ The use of ICTs in education, and more broadly where possible, in human development generally, are assessed in an evaluation of the planning and intent of 8 loans and 11 TA projects, the details of which may be seen in Appendix 1. The efficiency and effectiveness of the implementation of these projects and their impact could not be evaluated because nearly all were still under implementation in 2004. Thus no project completion reports or project performance audit reports—providing complete evaluations of project implementation and impact—had yet been completed for these projects, and files of ongoing projects are confidential.

Similarly, the scope of this review did not allow assessment of ICTs in ADB projects in other sectors—whether ICTs were introduced; whether the introduction of appropriate ICTs would have provided beneficial leverage to the success of a project; and whether they benefited from investments in ICTs in the education sector. Such investments should inevitably benefit all social sectors.

B. Evaluation Checklists

In planning and evaluating ongoing and proposed ICT initiatives, a common set of guidelines, commonly known as an Evaluation Checklist, should be used. From several models currently available, we have selected and modified the Australian guide as being perhaps more germane for the Asia-Pacific region. With the exception of the priority placed on the enabling framework and the building of local capacity—which come front and center on ITU, North American, and World Bank funded project checklists, this checklist is not substantially different from those adopted in Canada, the US, the UK, and other developed countries and within donor organizations. Another minor difference, perhaps, is the order of components and the level of detail of the specific issues to be addressed.

ICT-Driven Projects

Project planning and evaluation at the outset must take into consideration whether the project is ICT-led, or supported by ICTs. Checklist 1 below is for use with an ICT-driven project. This refers to a project where some aspect of information and communication technology is a lead component of the project. A second checklist is provided in the next section of this paper for use with projects where some aspect of ICT may be used as a means to an end, but the use of ICT is not a major component of the project.

In planning a project in a developing country using ICT as a lead feature, the checklist of 10 questions in Table 7 will help to assess its value as a tool for contributing to the development process.

Table 7: Good Practice Guide to the Design of ICT-Driven Projects

Component	Issues to be Addressed
<p>1. Is the objective of the ICT-based project aimed clearly at achieving a specific poverty reduction goal?</p>	<p>Questions for ICT-driven projects on reducing poverty as identified through the MDGs^a and indicators:</p> <p>Goal 1: Eradicate extreme poverty and hunger</p> <ul style="list-style-type: none"> • Does the ICT project reduce poverty and hunger by providing access to better or more reliable income earning opportunities for those on the lowest incomes? • Does the ICT project reduce poverty and hunger for those on the lowest incomes by promoting rural development/agriculture? Does the ICT project improve government service delivery in health, education to those on the lowest incomes? <p>Goal 2: Achieve universal primary education</p> <ul style="list-style-type: none"> • Does the ICT project increase numbers of young people who complete primary education? • Does the ICT project reduce illiteracy among 15 to 24 year olds? • Does the ICT project improve gender equity at all levels of education? <p>Goal 8: Develop a Global Partnership for Development</p> <ul style="list-style-type: none"> • Does the ICT project improve the prospects of decent & productive employment for young people 15 to 24 years? For women? For heads of families?
<p>2. Is there a clearly-specified target group for poverty alleviation?</p>	<ul style="list-style-type: none"> • A clear understanding is needed of the target group or groups to whom the project is directed. • The ICT-based project needs to show it is directed at meeting the needs of the poor. In most cases, this refers to those in rural areas. It can also refer to the poor among the urban population or specific groups, such as women among the rural or urban poor. • More specific target groups of the poor within geographical areas may need to be identified in middle-income countries. • A good knowledge of the target group's information needs is also needed. This can best be obtained by encouraging a representative group from the target population to define their own information needs—e.g. trainers of educators for remote schools. • Other sources of information may also be needed to ensure that narrow self-interest has not dominated the results of the participatory data collection.
<p>^a See http://www.developmentgoals.org/About_the_goals.htm.</p>	

Table 7: Good Practice Guide to the Design of ICT-Driven Projects
(continued)

Component	Issues to be Addressed
<p>3. Is the form of ICT to be deployed appropriate in terms of cost, support, maintenance and compatibility with existing information flows?</p>	<p>Appropriate form of ICT</p> <ul style="list-style-type: none"> • Is there an enabling policy and regulatory framework in place? If not, what alternative supporting mechanisms are available? • Are there best practices elsewhere that have proven that the technology is appropriate to the country's social, physical, economic, and political environments? • Is the project complementary to—and supportive of—the national ICT and education policies and strategies? • Have local stakeholders been intimately involved in the planning, design, implementation and delivery of the project? • Is the form of ICT to be deployed appropriate in terms of cost, support and maintenance? • Is the new form of communication compatible with existing information flows? <p>Appropriate forms of ICT refer to effective combinations of low-cost and innovative technologies. Important design features are:</p> <ul style="list-style-type: none"> • simple configuration, operation, and maintenance; • user friendliness; • equipment and software comply with international and local technical standards and they are compatible for interconnection to other systems; • use of appropriate radio communications frequencies; • robust and durable equipment with low total cost of ownership; • capacity for remote network management; • low power requirements; and • easily upgradeable hardware and software elements.
<p>4. Is the form of ICT to be deployed scalable to enable it to be replicated and expanded?</p>	<p>The ICT-based project, if it is to be more than a pilot, has to have the capacity to grow by extension into other geographical areas, and to be replicated in other locations or settings so that its success can be extended. This requires not only paying attention to the technical specifications of the equipment used. It also refers to consideration of:</p> <ul style="list-style-type: none"> • the capacities and reach of the supporting infrastructure, • the compatibility with systems that feed it and with those that will carry it, • the availability of management and technical skills in other locations, and

Table 7: Good Practice Guide to the Design of ICT-Driven Projects
(continued)

Component	Issues to be Addressed
	<ul style="list-style-type: none"> the supporting policy and regulatory framework related to the use of ICT. The principle of scalability refers to the capacity of the project's design to operate on a national level, able to meet the challenges that this would involve.
<p>5. Are appropriate intermediaries being used?</p>	<p>The need to use intermediaries is a key element of the successful use of ICT in development. Intermediaries refer to the contributed international experts and to those with direct ties to the beneficiary community.</p> <ul style="list-style-type: none"> Do the international consultants have extensive practical experience in similar situations or is their knowledge mostly theoretical and academic? Do the international experts have access to extensive backstopping to provide in-depth technical information that may not be available locally? What is the motivation of the intermediaries? Will they gain economic reward tied to the quality and quantity of services they provide?
<p>6. What scope is there for public-private partnerships?</p>	<ul style="list-style-type: none"> Partnerships can involve private enterprises, governments and non-government organizations. Potential partners include domestic enterprises, local NGOs, international corporations, and multilateral agencies. If a private or public partnership is supported through donor contributions, how do you ensure that this would not be fostering a monopoly situation to the detriment of potential beneficiaries? What leverage is available to bring partners back into line in case of less than expected performance?
<p>7. Is the content transmitted by the ICT relevant to the audience and is it in a language and format easily understood by the target audience?</p>	<p>Language, culture and content</p> <ul style="list-style-type: none"> Is it in a language easily understood by the target audience? Is there readily available, interesting, and relevant generic content from other sources that can be localized and distributed at the onset to build up a client base? Are there local traditions, events, music, and performances that could benefit from this project? Is the content transmitted by the ICT project relevant to the audience? The lack of availability of content in the local language can be a key barrier to the effective use of ICT for development.

Table 7: Good Practice Guide to the Design of ICT-Driven Projects
(continued)

Component	Issues to be Addressed
	<ul style="list-style-type: none"> • Where there is relevant information in a local language, it may still need to be tailored for use at the village level. • Local research involving direct engagement with the local population is often needed to work out what is relevant information. • Two-way communication needs also to be incorporated into the project for feedback to ensure that genuine understanding can take place and is demonstrated.
<p>8. Is the project self-sustaining, and over what period?</p>	<p>Sustainability refers not only to financial viability, but it also includes continuing organizational, social, and political support. The reasons for non-sustainability can often be traced to insufficient consideration of the challenges faced. These may include:</p> <ul style="list-style-type: none"> • little or no support (buy-in) in the local community from key stakeholders. • lack of an appropriate national policy structure, and/or • poor appreciation of the physical, economic and educational barriers at community level to the effective use of ICTs.
<p>9. How is the project to be monitored and corrective measures applied when needed, and how are results to be measured?</p>	<ul style="list-style-type: none"> • Monitoring performance and evaluating is essential to show how well the project's objectives are being achieved. It is the way to learn from experience. • Monitoring and evaluation requires the participation of stakeholders and beneficiaries to get their feedback on whether the project is achieving what it claims to be • Evaluation results also need to be made available in a variety of formats for different target audiences

ICT-Supported Projects

When planning a development project, and there is a need to determine the value of incorporating an ICT component, the steps in the checklist in Table 8 will help plan how best to approach the task. The purpose of these 11 steps is to clarify what it means to integrate information and communication technologies into a development

Table 7: Good Practice Guide to the Design of ICT-Driven Projects
(continued)

Component	Issues to be Addressed
<p>10. What unexpected events or situations might arise? and What should be done to manage these?</p>	<ul style="list-style-type: none"> • Delivering an aid program is an inherently risky venture. An ICT-based project is likely to compound the risk. This is due to the technical difficulties that are an inherent feature of ICT in its constant state of evolution and the limited access to real expertise to help solve problems in a developing country. • Many development activities fail to live up to expectations. This applies particularly to ICT projects due to the widespread hype about the new technology's potential. • The key questions for a donor in identifying and managing risk are: 'What unexpected events or situations might arise?' and 'What should be done to manage these?' • The risks involved at each stage of the activity cycle of a project need to be identified and managed. For more details, visit AusGUIDE, 2001, Activity Cycle Overview. • The potential risks for all the stakeholders involved need to be identified. This refers to the potential risks for the recipient government, the community targeted for the program, and the service deliverers or other intermediaries. • In relation to the targeted poor, one risk factor to consider is whether the project is likely to exacerbate local inequalities or increase tension between ethnic or religious groups. • A critical factor is the absorptive capability of the local champions in being able to cope with the unexpected and applying appropriate solutions on their own initiative.
<p>ICT = information and communication technology, MDGs = Millennium Development Goals.</p>	

project. Poverty reduction is chosen as a focus to illustrate the proposed steps for two reasons: poverty reduction is likely to be the objective of many projects; and a focus on poverty reduction highlights the value of not considering ICTs as ends in themselves, but as a means to an end.

Table 8: Good Practice Guide to the Design of ICT-Supported Projects

Component	Issues to be Addressed
1. Define Project objective: In terms of poverty reduction, what aspect of poverty does the project address?	Poverty has many dimensions. These include lack of basic income and regular experience of hunger, no access to basic education or health care, especially for children and mothers, exposure to HIV/AIDS, malaria, and tuberculosis, and lack of access to jobs for young people.
2. Who are the poor to be targeted by this program? To what extent is it possible to identify the poor in terms of rural/urban location, region, gender, age, education attainment & health status?	<ul style="list-style-type: none"> • To what extent is it possible to identify the poor in terms of rural/urban location, region, gender, age, main source of livelihood, education attainment, health status? • This profiling requires the availability of comprehensive data sources such as census data, a large sample representative sample survey, or good quality administrative data at the local level. • It may be sufficient, however, in countries with a low average per capita income, to use only two dimensions to identify broad target groups of the poor. • In low-income countries, examples of the two dimensions are location and gender—for example, women in rural areas, or women in a particular region notably poorer than other regions.
3. What are the likely causes of the aspect of poverty the program is focusing on? Try to rate the likely causes in order of importance? Is poor communication one of the causes?	<ul style="list-style-type: none"> • What are the likely causes, as distinct from the effects, of the aspect of poverty the program is focusing on? • Is it possible to rate the likely causes in order of importance? • Is poor communication a cause of this aspect of poverty? <ul style="list-style-type: none"> > Identifying the likely causes of the particular type of poverty under scrutiny is essential to work out the best point of intervention. > A focus on possible causes helps to ensure that the project is not merely alleviating the symptoms of poverty. For example, looking for the causes of hunger may require going beyond the obvious, such as poor nutrition, to look for more fundamental causes, such as a lack of access to productive land or other critical resources. > This process of assigning order of importance to the likely causes may be difficult, but it holds the promise of achieving a more permanent impact.
4. What types of interventions are most likely to be	What types of interventions are most likely to be effective in addressing the causes of poverty? Try to distinguish between direct, indirect, and supporting interventions.

Table 8: Good Practice Guide to the Design of ICT-Driven Projects
(continued)

Component	Issues to be Addressed
<p>effective in breaking the causal linkages? Need to distinguish between direct, indirect, and supporting interventions.</p>	<ul style="list-style-type: none"> • A direct intervention refers to addressing a prominent underlying cause of poverty. For example, providing access to other income generating opportunities in the above case where hunger is caused by lack of access to a sustainable livelihood. • Indirect interventions seek to establish an environment or set up an intermediary to make the directly targeted interventions more effective. Examples of indirect interventions include: <ul style="list-style-type: none"> > Financing public health facilities. > Establishing a sound policy and regulatory framework for credit facilities. > Undertaking agricultural research appropriate for small farmers. > Supporting interventions may not provide any direct linkages with the target population but may, nevertheless, benefit the poor by helping them to reduce their poverty. > Policy reform of how government services are delivered by making the service delivered more accountable and transparent is an example of a supporting intervention. Systems that promote more effective service delivery, such as help the poor gain better access to basic education or health care. • Identifying the likely causes of the particular type of poverty under scrutiny is essential to work out the best point of intervention. • A focus on possible causes helps to ensure that the project is not merely alleviating the symptoms of poverty. For example, looking for the causes of hunger may require going beyond the obvious such as poor nutrition to look for more fundamental causes, such as a lack of access to productive land or other critical resources. • This process of assigning order of importance to the likely causes may be difficult but it holds the promise of achieving a more permanent impact.
<p>5. What are the information and communication needs of the targeted poor in relation to the project's objectives and how important are they to the success of the project?</p>	<ul style="list-style-type: none"> • What are the information and communication needs of the targeted poor in relation to the project's objectives? • How important are they to the success of the project? • In relation to the success of the project, are meeting the information and communication needs of the poor crucial, valuable but not essential, or are they peripheral?

Table 8: Good Practice Guide to the Design of ICT-Supported Projects
(continued)

Component	Issues to be Addressed
<p>6. What role can ICT and other media play in delivering the information and providing channels of two-way communication?</p>	<ul style="list-style-type: none"> • What role can information and communication technologies, broadly defined, play in providing channels of two-way communication? • What role is there for ICT to meet the communication needs identified in Step 5? • Is the use of ICT likely to play a central role, an important but not central role, or a peripheral role?
<p>7. Is there an appropriate form of ICT, which can be deployed in terms of cost, support, maintenance, and compatibility with existing information flows?</p>	<ul style="list-style-type: none"> • Is there an appropriate form of ICT, which can be deployed in terms of cost, support, maintenance, and compatibility with existing information flows? • Is it possible to combine several ICTs to deliver the desired cost-effective outcome? • For example, it may be important to have a final link, which is low cost, such as a community radio outlet, and radios using renewable energy sources. • Is equipment locally available to replace parts easily and provide maintenance support? • Is the use of ICT compatible with existing information flows shaping how the targeted poor communicate?
<p>8. Does an enabling environment exist for the ICT to provide the proposed support?</p>	<ul style="list-style-type: none"> • The enabling environment for the use of ICT refers to the regulatory framework. It also refers to government practice, such as a whole-of-government strategy to improve service delivery. • The sorts of issues that may be important are: national telecom policy and legislation; availability and reliability of infrastructure, such as electrical power sources; availability of local training in ICT literacy and maintenance skills; and agreed changes to education and health delivery to make use of ICT. • One way to locate the gaps in the enabling environment is to bring together a group of stakeholders and use a brainstorming methodology to identify the issues or problems and what needs to be done to change the situation.

Table 8: Good Practice Guide to the Design of ICT-Driven Projects
(continued)

Component	Issues to be Addressed
9. What measures can be devised to assess progress toward the poverty reduction objective?	<p>Examples of possible measures are the indicators used to assess progress for attaining the MDGs. It is important that progress measures report outcomes in some way rather than merely a project's inputs and outputs, or its processes.</p>
10. Is there a methodology in place to assess how effective the proposed intervention is in achieving the operational objectives of the program?	<ul style="list-style-type: none"> • Is there a methodology in place to assess how effective the proposed intervention is in achieving the objectives of the program? • An evaluation strategy needs to be in place to provide feedback on how well the project is meeting its objectives. • Good information about what is working and what is not in relation to poverty reduction is an essential requirement for fine-tuning future strategies.
11. What unexpected events or situations might arise? What should be done to manage these?	<ul style="list-style-type: none"> • What unexpected events or situations might arise? • What should be done to manage these? • Identifying potential risks and development of appropriate strategies for managing the identified risks is also an essential part of project design. • It is important to identify the risks from the point of view of all stakeholders involved and not merely the donors. Other important stakeholders are the recipient government, the community targeted for the program, the service deliverers, and other intermediaries.
ICT = information and communications technology, NGO = nongovernmental organization.	

C. Evaluation and Observations

Priority was placed on identifying and reviewing projects with a significant ICT component, and not projects where ICTs are used simply as a support or implicit function—such as acquisition of computers for administrative purposes, setting up a modest management or record keeping facility, or part of a set of skills development. In some projects examined, a distance education system is to be established, but available documentation does not reveal whether this is to be online or passive DE—such as DE using the postal system. It was assumed there was a degree of electronic leverage to be considered in such projects. Additionally, some projects were examined that are not specifically in the education sector, but that cut across all sectors of a national or regional economy and are enabling in nature, with carriage and delivery of education frequently a priority service. The TA projects in the Maldives (MLD 34276-01) and in the Pacific (5990-REG) are of this nature (see Appendix 1).

Few of the projects reviewed drew inspiration from the ADB ICT Strategy, in that seldom was there an assessment of the enabling policy and regulatory framework, or of local e-readiness, including absorptive capability, in the project description. The notable exceptions were the previously mentioned projects in the Maldives and the Pacific, as well as a project in Samoa (TA SAM 36513-02) and one in Sri Lanka (TA SRI 33251-01).

The project review process revealed a significant number of major projects where the opportunity to use ICTs to facilitate training or decentralization was missed. This is especially critical when administrator and teacher training is involved, since teachers are on the front line as champions in helping to carry the national educational system into the knowledge economy. Today, it is difficult to imagine a preference for exclusive use of traditional printed materials and pedagogy when it is painfully obvious that secondary school graduates will require proficiency in ICTs in most occupations to compete successfully for meaningful employment anywhere in the world.

In some cases, successful outcomes of projects reviewed were difficult to visualize, since consultant eligibility was restricted to domestic firms, when there were no precedents in the project country for the fairly complex operations called for under the project.

Most of ADB investments in ICTs do not appear to blend naturally and uniformly into the mainstream of ADB activities, which are still largely focused on physical infrastructure, such as roads, power, and transportation.¹⁵⁴ Much of this may be attributable to the limited exposure of individual project officers to the benefits ICTs in their area of expertise. EC meta-evaluation of European donor agencies' use of ICT in development noted that the ICT dimension of programs in governance, poverty, etc, was often subject to the discretion of individual officers. If there is a parallel situation in ADB, incorporating ICT in mainstream programs may depend largely on individual officers' understanding (or lack) of the potential of ICTs. In the EC, this piecemeal approach led to a highly variable result, restricting opportunities to make good use of ICT in development. The overall effect was a disjointed approach to ICTs by development organizations overall.

In any institution, champions can play a key role in smoothing the introduction of new ways of working. ICT champions are found in most ICT-based projects, helping to adapt the new technology to the development context and facilitating organizational learning. There is obviously scope for ICT champions to play the same role within all donor agencies. In this context, it is interesting to note that more than half of ADB projects with substantial ICT components were in the South Asia region.

Another way to diffuse new perspectives in an organization is to set up a "community of practice." This can be done through face-to-face meetings (such as "brown bag" lunchtime seminars, for example). However, the obvious way to keep up is through an electronic discussion list. This can be used to share knowledge, experiences, and ideas among development practitioners and others. The discussion list could be kept internal to the donor organization or it could be broadened to include practitioners in the field or researchers working on the same issues. The challenge for the champions of ICT in development is to seek out and highlight the lessons of the initial pilot, or "installation," stage to achieve a turning point for progress to a more synergistic and mature "deployment" stage. Regular, focused communication needs to be at the center of any strategy to achieve that turning point.

¹⁵⁴ Almost half of the amount of new public sector approvals in 2002 went to the energy, industry, and transportation and communications sectors. The agriculture and natural resources, and social infrastructure sectors accounted for 20%. Source: ADB Annual report on loan and technical assistance portfolio performance for the period ending 31 December 2002.

The evaluation grid, Figure 4 below, has been constructed from information available in the project summaries of the projects reviewed. It is possible that elements that are indicated as missing have been included in the project, and this fact is not reflected in the project descriptions. Future project summaries, if they follow guidelines in the ADB's ICT Strategy, would undoubtedly address these issues as appropriate.

Three critical considerations have been added to Checklists 1 and 2 (above) when reviewing the 19 projects, and are included in the Project Evaluation Grid below: i) whether an ICT readiness study of the project country was included in the project, or was available from ADB or alternative sources; ii) whether there were obvious links to ADB ICT Strategy, and iii) whether the project traces links to the client country's national ICT Policy.

Figure 4: ICT Project Evaluation Grid

ICT Led	1	2	3	4	5	6	7	8	9	10	11	12
ICT Supported TA / Loan No.	1	2	3	4	5	6	7	8	9	10	11	12
Country	1, 2, 8	2	3	4	5	6	7	8	9	10	11	12
36632-01	Regional	L	1, 2, 8									
36245-01	Mongolia	S	2									
31213-01	Mongolia	S	2									
34276-01	Malaysia	L	8									
34276-02	Malaysia	L	8									
36611-01	Nepal	S	1, 8									
35192-01	Sri Lanka	L	1, 2									
33245-01	Sri Lanka	S	2									
36511-01	Sri Lanka	L	1, 8									
33251-01	Sri Lanka	L	1, 2, 8									
33251	Sri Lanka	L	1, 2, 8									
26061-01	Bangladesh	S	1, 2									
34022-01	Nepal	S	1, 2									
35253-01	Thailand	L	2									
34160-01	Uzbekistan	S	2									
34160-02	Uzbekistan	S	1, 2									
5990	Regional	L	1, 2, 8									
36513-02	Samoa	L	1, 2, 8									
31081-01	Indonesia	S	8									

Legend: Yes (Green), No (Orange), Unknown (Yellow), Not Applicable (Grey)

ADB = Asian Development Bank, ICT = information and communications technology, MDG = Millennium Development Goals, TA = technical assistance. Source: CAELIS International, March 2004